We have received the first number of the *Revista* of the Society of Instruction of Oporto. There are various papers bearing on education, and one by Mr. E. J. Johnston on the Phanerogamous Flora of Oporto. The number of English names on the list of this Society is remarkable; the first name among the Foundation Members is that of Isaac Newton, followed by W. C. and A. W. Tait; there are several Allens, a Johnston, several Kendalls and Coverleys, F. C. Rawes, Henrique Rumsey, a Grant, a Hastings, and an Archer. This no doubt indicates the close commercial relations between Oporto and England.

It is known that Leverrier, urged by growing infirmities and apprehending that he would not live to accomplish his great work on the theory of Saturn, left a part of his calculations uncompleted, convinced that this would exert no real influence on the total result. But M. Gaillot, the director of the Calculation Service of the Paris Observatory, felt it a duty to fill up the gap left by the late director of the observatory and to revise the whole of his work. We are happy to state that, as far as the revision has gone, the accuracy of the conclusions published by the great astronomer is demonstrated, and none of the neglected terms will exert any appreciable influence.

We take the following from the *Albury Banner* (New South Wales) :—It has long been a matter of popular belief that the great kingfisher was an enemy of the snake, perpetually warring upon the tribe in general, and never happier than when dining on serpent *au naturel*. It is not often, however, that even persons habitually residing in the bush have so good an opportunity as that afforded a few days since to Mr. Christian Westendorff of Jindera, for observing the laughing jackass when in the act of bagging the game referred to. Mr. Westendorff was engaged with another man in clearing some land, and in the course of the day's operations it became necessary to shift a large log. For this purpose levers were applied to each end, and after some straining the log was rolled from its resting-place. The very moment it commenced to move a laughing jackass, which had hitherto been taking a deep but unobtrusive interest in the proceedings, made a swoop down from the limb of an adjacent tree, and seized a large snake which had been lying under the log. The snake was gripped by the back of the neck (if snakes can be said to have necks) and borne away to the bird's previous perch, where the unfortunate reptile was banged against the bough until the body separated from the head and fell to the ground. The jackass then dropped the head, and seizing the body sailed away in triumph with his prize. Whether the bird had seen the snake go under the log and was watching for it to come forth again, or whether it knew by instinct that the reptile was there, is a question that may be left for naturalists to determine; but we are credibly informed that as soon as the log was shifted, and before Mr. Westendorff or his companion had any idea of a snake being in their neighbourhood, the jackass was down and had made good his seizure.

The Russian Technical Society has created a special branch which will devote its attention to aëronautics, especially to the popularisation of all branches of aëronautics, to recent researches on this field, to the meteorology of the higher regions of the atmosphere, and to the study of the applications of aërostatics to military purposes.

We note from the *Deutsche Industrie-Zeitung* that during 1879 some 140 tons of amber were obtained at the coast of the Baltic, of which the mine at Palmnicken yielded seventy-five tons, and the digging-engine at Schwarzort the remainder. About fifteen tons were gathered by nets and picked up on the shore. Some 3000 people (including women and children) gain their living by gathering amber.

At the end of 1880 the Berlin Electro-technical Union numbered no less than 1575 members, 1246 of whom are foreigners.

A number of Celtic tombs were recently discovered near Lichtenwald, on the frontier between Styria and Carniola, not far from Cilli. Several of them were opened, and numerous urns were found in them. A few objects of more interest have been sent to the local museum at Cilli.

The well-known Hungarian archæologist, Herr Wilhelm Lipp, continues the excavations of the ancient burial-ground discovered by him at Kessthely. The cost is borne by the Budapest Archæological Society. These tombs are rich in bronze and iron objects dating from the fourth and fifth centuries.

OUR ASTRONOMICAL COLUMN

Brorsen's Comet in 1842.—In September, 1846, it was pointed out by Mr. Hind (*Astron. Nach.* No. 582) that the comet of short-period discovered by Brorsen at Kiel on February 26 preceding must have approached very near to the planet Jupiter about May 20, 1842, possibly within 0·05 of the earth's mean distance, and it was surmised that an entire change of orbit might have been produced at that time. In 1857 D'Arrest examined this point more closely, applying the formulæ of the *Mécanique Céleste* to determine the elements prior to the encounter with the planet. His results were published in *Astron. Nach.* No. 1087. Adopting good elements for 1846, but without taking account of perturbations, since the comet left the sphere of activity of Jupiter after the near approach, he inferred that the closest proximity occurred May 20·6924 Berlin mean time, the distance between the two bodies being then 0·05112; that for April 19·5 the inclination of the comet's orbit was 40° 51′, or 10° greater than in 1846, and that the perihelion distance was greater than 1·5, instead of 0·65 at the time of Brorsen's discovery, and it was considered that the comet would not be visible when the radius-vector was much over unity; hence, perhaps, our ignorance of its existence before the year 1846. Thus the question has remained until within the last two years. Our object now is to record the results of a much more complete investigation of the effect of the comet's encounter with Jupiter, by Herr Harzer, forming the subject of an inaugural dissertation in the University of Leipsic in 1878. He adopts the definitive elements of Prof. Bruhns for 1846, with a small correction to the mean motion indicated by the observations at the comet's reappearance in 1868, and calculates backward with great care the perturbations of Mercury, Venus, the Earth, Mars, Jupiter, and Saturn to 1842, July 16·5, when the distance from Jupiter was 0·305; the total perturbations in the interval 1846, February 25·5 —1842, July 16·5 are as follows :—Mean anomaly, – 1° 58′ 32″·6; mean sidereal motion, + 4″·391; longitude of perihelion, + 9′ 52″·8; ascending node, + 24′ 35″·4; inclination, + 1° 48′ 31″·4; angle of eccentricity, + 56′ 30″·0. From the ecliptical co ordinates of the comet with respect to Jupiter at the latter date and the variations of these relative co-ordinates, the hyperbolic elements of the orbit about the planet are obtained and the perijove is found to have taken place May 27·28488 M.T. at Berlin, when the distance was 0·054714. The hyperbolic elements are assumed to 1842, April 7·5, when the distance between comet and planet was 0·30334, and the radius of the sphere of attraction 0·27149. The elements are then again referred to the sun, and thus the following figures defining the comet's orbit before this near approach to Jupiter, result :—

Epoch, 1842, April 7·5 Berlin M.T.

	°	′	″	
Mean anomaly	135	0	58·0	
Longitude of perihelion	111	50	20·6	1846·0
„ „ ascending node ...	103	42	12·8	
Inclination...	46	18	57·4	
Angle of eccentricity	49	32	10·0	
Mean daily motion	686″·253			
Log. semi axis major	0·4756809			
Perihelion distance	0·7151810			

The only very striking difference from D'Arrest's figures, which were confessedly a rough approximation, is in the perihelion

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distance, which, as will be seen, is found to be much smaller, indeed not one-half as great, by Herr Harzer.

The author of this very able dissertation remarks upon the similarity of the elements he has deduced for Brorsen's comet before the near approach to Jupiter, to those of the first comet of 1798, discovered by Messier on April 12 and observed by him till May 24; this comet was computed by Burckhardt and Olbers. Herr Harzer finds, however, that it is not probable Messier's observations will admit of an orbit widely different from a parabola. He considers there is reason to conclude that the orbit of 1842 was impressed upon the comet by a close approach to Jupiter in 1759-60, and that another change may be similarly produced in 1937, as hinted by D'Arrest.

HERSCHEL'S FIRST OBSERVATION OF URANUS.—We are now close upon the centenary of the discovery of Uranus on March 13, 1781. Perhaps some readers may be interested in the following examination of the first evening's measures of distance and angle of position from a small star, with which Herschel compared the planet till March 21. In his "Account of a Comet," for as such the planet was announced in a communication to the Royal Society read on April 26, he gives the distance from the small star "2′ 48″ by pretty exact estimation true to 20″," and the angle "0° 0′ by superficial estimation, liable to an error of 10° or 12°," this angle corresponding in our present system of double-star measures to 270°, or preceding on the parallel: this distance and angle are for 10h. 30m. at Bath.

By Prof. Newcomb's pretty accurate "provisional theory," we find the place of Uranus for 1781, March 13, at 10h. 30m. M.T. at Bath, or 10h. 39m. 20s. Greenwich M.T., to be as follows:—True R.A. 5h. 35m. 47·77s., true Decl. +23° 32′ 58″·3, and the corrections to apparent place are −0·32s. and −0″·2; the log. distance of the planet from the earth being 1·27742. It is clear from this that Herschel's star, which he calls *a*, is No. 1576 in Rümker's Catalogue (the first impression of 0h.−6h.), where it is estimated a tenth magnitude: Argelander in the *Durchmusterung* has 9·0. The mean place accurately carried back to 1781·0 was—

R.A. 5h. 36m. 0·85s. Decl. + 23° 32′ 3″·7.

For this date and hour we find, in the notation of the *Nautical Almanac*—

Log A. −1·2709. Log B. + 0·3473. Log C. +7·7110.
Log D. −0·8971.

Whence the apparent place of the star was—

R.A. 5h. 36m. 0·84s. Decl. + 23° 32′ 11″·6.

Consequently the calculated distance of planet from star is 3′ 10″·2, and the angle of position 284°·2, agreeing as nearly with Herschel's estimates as under the circumstances can be expected. At his next observation on March 17 the distance by observation was 42″; the computed distance 54″.

GEOGRAPHICAL NOTES

THE last meeting of the Russian Geographical Society was very animated, owing to the presence of Prof. Nordenskjöld. The great hall of the Society was crowded, and the explorer of the northern seas was greeted with loud cheers. The president of the Society, M. Semenoff, opened the meeting with a speech of welcome in which he sketched the long series of expeditions undertaken from Europe to Siberia since the year 1553, when Willoughby directed his three ships to the White Sea, and paid for his undertaking with his life. Prof. Nordenskjöld replied in a short speech, referring to the expeditions which will start next spring for the exploration of the Siberian shores; and Prof. Lentz made a communication on Polar meteorological stations and on their importance for science.

ORENBURG was the first town which enjoyed the pleasure of hearing the story of Col. Prjevalsky's journey told by himself. On his passage through this town, on January 2, the traveller gave a lecture on the adventures of his journey to Tibet, which we have already told. From Orenburg M. Prjevalsky started to visit his relations at Smolensk, whence he proceeded to St. Petersburg, reaching it at the same time as his companions and his collections, which were at the beginning of January on their way from Orsk to Orenburg.

DR. LENZ, the German traveller who lately accomplished the feat of reaching Timbuctoo from the north, has arrived at Bordeaux, and is expected at Berlin soon to give an account of his explorations.

THERE are at present sixty-five geographical Societies in the world. The oldest of these is that of Paris, founded 1821; there is also a Society of Commercial Geography at Paris, founded 1873. Besides these France has geographical societies at Lyons, Bordeaux, Marseilles, Montpellier, Rouen, Nancy, Bergerac, Périgueux, Rochefort, Mont-de-Marsan, Agen, Apinal, Rochelle, Douai, Dunkirk, St. Omer, Lille; and one is about to be founded at Bar-le-Duc. The Berlin Geographical Society was founded in 1828, besides which Germany has similar societies at Frankfort, Darmstadt, Leipsic, Dresden, Munich, Bremen, Halle, Hamburg, Friberg, Metz, Hanover; other societies are in formation at Halberstadt, Magdeburg, and Jena. The London Geographical Society, the only one in England, was founded in 1830. The next oldest society (after Frankfort) is that of Rio Janeiro, founded 1838; then Mexico, 1839; St. Petersburg, 1845; in Russia there are besides—societies at Tiflis, Irkutsk, Vilna, Orenburg, Omsk. The other societies are those of the Hague, 1851; New York, 1852; Vienna, 1856; Geneva, 1858; Rome, 1867; Buda-Pesth, 1872; Amsterdam, 1873; Bucharest, 1875; Lisbon, 1875; Madrid, Antwerp, Brussels, Copenhagen, Lima, all 1876; Stockholm and Quebec, 1877; St. Gall, Berne, Oran, 1878; Tokio, 1879; Buenos Ayres, Algiers, and Oporto, 1880.

THE Hamburg firm of C. Woermann has sent Mr. Hermann Soyaux to the French colony of Gaboon in order to try to cultivate the coffee-tree of Liberia at that place. Soyaux has now been at Gaboon for two years, and has there established the Scibomge farm, which is situated about a day's march inland from the Gaboon River, on the Awandu River, which flows in a north-easterly direction into the Bay of Corisco. He now employs some 100 negroes. Many thousand coffee-trees have been imported from Liberia, and have been planted, and experiments have also been made with sowing. the beans, so that at the beginning of 1882 the first coffee-harvest is confidently expected. The Hamburg firm supports the undertaking in a most efficient manner by sending engines, implements, &c., and experiments are also pending to introduce and acclimatise horses and mules. Mr. Soyaux makes meteorological observations for the Leipsic Observatory and natural history collections for the Hamburg Museum.

IN the current number of *Les Missions Catholiques* we find appended to a letter from Mgr. Cluzel, the Apostolic Delegate in Persia, some notes on the Kurds, which are just now of considerable interest. These notes deal with the origin of the Kurds, their country, language, present condition, religion, manners and customs, &c.

THOUGH no doubt much geographical information respecting the Philippines may be obtained from Spanish works, there is but little readily accessible to the English reader. It may therefore be well to call attention to a useful *résumé* furnished by H.M.'s Consul at Manila in his commercial report for 1879. He gives some brief particulars respecting each of the twenty-one provinces into which the principal Island of Luzon is divided, and afterwards deals with some of the other chief islands. The interior of the Island of Mindoro, immediately south of Luzon, he tells us, is not explored, but is supposed to contain much mineral wealth. In the Visayan group much of the interior of Negros, Samar, and Paragua is likewise not explored. Capt. Pauli adds that the archipelago is believed to contain 1200 islands of all sizes. The report is accompanied by an outline map, on which the principal islands are shown, as well as the division of Luzon into provinces.

M. LUCEREAU, a member of the Paris Geographical Society, has been killed by natives on his exploring expedition in Eastern Africa. He had started from Aden in June last in order to reach the Upper Nile by crossing the territory inhabited by the Gallas Negroes.

THE *Bulletin* of the International Geographical Institute at Berne has with the new year begun a new series on a larger scale than the previous issue. In the first number the contents of previous issues are resumed, the chief novelty being a fine map of the South Polar regions, on linen, in connection with the proposed Italian expedition. We cannot yet see exactly what place this *Bulletin* fills in geographical journalism.

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